



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,038	12/20/2005	Hiroyuki Yoshida	10873.1679USWO	8555
52835 7590 05/18/2009 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. P.O. BOX 2902 MINNEAPOLIS, MN 55402-0902				
EXAMINER				
PRINCE, FRED G				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
05/18/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/532,038

**Applicant(s)**

YOSHIDA, HIROYUKI

**Examiner**

Fred Prince

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 March 2009.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-14 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-5 and 7-14 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on December 2, 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SF-08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 7 and 11-13 are finally rejected under 35 U.S.C. 102(b) as being anticipated by Nagamatsu et al. (US Pat No 6,143,176).

Nagamatsu et al. teach a method for producing methane gas from organic wastes, comprising: treating organic wastes with at least one of supercritical water and sub-critical water (11; col. 4, lines 46-67-col. 5, lines 1-12) to convert the organic wastes into low molecular weight substances; separating the treated substances into an oil phase, a water phase, and a solid phase, so that the water phase is collected (col. 5, lines 13-39); and subjecting the collected water phase to methane fermentation (4; col. 5, lines 35-44).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 10 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Nagamatsu et al. ('176).

Nagamatsu et al. do not explicitly disclose the conversion treatment occurs continuously.

In any case, it is submitted that it is conventional in the art to treat organic wastes continuously in order to, for example, avoid treatment downtime associated with non-continuous treatment regimes.

Per claim 10, Nagamatsu et al. do not disclose 90% digestion efficiency.

In any case, it is submitted that it is known in the art to break down complex organics into low-molecular weight compounds prior to a methane fermentation stage in order to increase the efficiency and purity of the methane produced (see, for examples, US Pat No 4,722,741 to Hayes et al. and US Pat No 4,067,801 to Ishida et al.) and it is known in the art that residence time effects the degree of conversion, wherein conversion may be as high as 90% with a residence time of a few hours depending on the carbon load (see, for example, US Pat No 4,609,460 to Vellinga). Accordingly, it is submitted that it is well within the purview of the skilled artisan to utilize produce methane in such a way

that carbon digestion efficiency is at least 90% in order to, for example, degrade a given amount of carbon compounds.

5. Claims 8-9 and 14 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Nagamatsu et al. ('176) in view of Harada et al. (US Pat No '220). The method of Nagamatsu et al. is described above. Nagamatsu et al. do not disclose explicitly that the fatty acid formed is acetic acid or a fermentation time of 5 to 48 hours. In any case, Harada et al. disclose the concepts of forming acetic acid (col. 9, lines 12-21) during a conversion treatment of organic wastes in order to, for example, provide an easily degraded fatty acid during methane generation and fermenting the fatty acid for a time within the recited period (col. 5, lines 58-63) in order to, for example, ensure the highest degree of methane formation.

Accordingly, it would have been readily obvious for the skilled artisan to modify the method of Nagamatsu et al. such that it includes forming acetic acid during a conversion treatment of organic wastes in order to, for example, provide an easily degraded fatty acid during methane generation and fermenting the fatty acid for a time within the recited period in order to, for example, ensure the highest degree of methane formation. Per claim 14, Nagamatsu et al. do not explicitly disclose selective generation of the useful material based on temperature or time.

In event, Harada et al. disclose selective generation of the useful material based on temperature or time (col. 5, lines 20-30) in order to, for example, provide material suitable for methane fermentation.

Accordingly, it would have been readily obvious for the skilled artisan to have modified the method of Nagamatsu et al. such that it includes the well known concept of selective generation of the useful material based on temperature or time in order to, for example, provide material suitable for methane fermentation.

### ***Response to Arguments***

Applicant's arguments filed March 10, 2009 have been fully considered but they are not persuasive. Applicant asserts that Nagamatsu et al. do not disclose the features of treating organic wastes with at least one of supercritical water and subcritical water, separating the treated substances so that the water phase is collected and subjecting the collected water phase to methane fermentation, However, for the reasons provided above, Nagamatsu et al. teach the features.

Applicant appears to argue that Nagamatsu et al. do not teach directly treating organic wastes with at least one of supercritical water and subcritical water. However, it is noted that applicant does not claim that the organic wastes stream is directly treated by supercritical water or subcritical water. Accordingly, as applicant is arguing a limitation not claimed, the argument fails to patentably distinguish the instant invention over the prior art. Further, it is noted that applicant's claim language, which includes the transitional phrase "comprising" does not appear to rule out any steps occurring prior to the supercritical or subcritical treatment.

As best understood, applicant appears to assert that the separated aqueous phase is so much reduced in organic wastes that it contains little to no organic matter. However, it is noted that Nagamatsu et al. clearly teach that the aqueous phase is still high in organics (col. 5, lines 34-39) and requires digestion for methane fermentation. Accordingly, applicant's assertion, as best understood, fails to patentably distinguish the instant invention over the prior art.

Applicant asserts that Nagamatsu et al. teach a completely different invention than that claimed by applicant. The examiner respectfully disagrees. The instant claims do not call for, for example, the organic wastes to be fed directly to the supercritical or subcritical treatment without any previous treatment or without methane fermentation as argued by applicant. Applicant argues that the claims previously rejected under 35 USC 103 are allowable because claim 1 is allowable. However, for the reasons provided above, claim 1 is not allowable. Accordingly, the argument fails to patentably distinguish the instant invention over the prior art.

For the reasons provided above, the rejections of record made by the examiner are proper and are maintained.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Prince whose telephone number is (571)272-1165. The examiner can normally be reached on M-Th 8:00-5:30; Alt. Fridays 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571)272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Fred Prince/  
Primary Examiner  
Art Unit 1797

Application/Control Number: 10/532,038  
Art Unit: 1797

Page 8

FGP  
5/12/09